

Please input your data below by putting a tally mark next to where you fit

**HAIR COLOR**

Blond

Brown

Black

Red

Mixed

**EYE COLOR**

Blue

Green

Brown

Hazel

Mixed

Other

**ZIP CODE**

18976

18901

Other

Distribution (of a variable)

show<sup>all</sup> the values of a variable  
+ how often it takes those values

\* Exploratory Data Analysis: (topic ch. 1-5)

Use graphs, distributions, numerical summaries, etc. to describe data  
+ make conclusions. (informal)

Graphs/Distributions:

Which ones will we do?

- bar chart
- pie chart
- stemplot
- dotplot
- histograms
- box plot
- smooth curve



## Categorical Distributions:

### 1. Bar Graph

- x-axis  $\rightarrow$  values
- y-axis  $\rightarrow$  count (#)  $\rightarrow$  frequency
- %  $\rightarrow$  relative freq.



### 2. Pie Chart

- draw circle
- split into pieces for each value
- \* show all parts of whole
- \* shows rel. freq. (%)



## Quantitative Distributions:

### 1. Stemplot (aka Stem and Leaf Plot)

- Separate...

- Write...

- Write...

each obs. into stem & leaf ← last digit

all stems vertically (sm. to lg.)

Ex: 2, 12, 35,  
40

Example 1:

Babe Ruth's homerun totals each season for the Yankees:

54, 59, 35, 41, 46, 25, 47, 60, 54, 46, 49, 41, 34, 22

leaves next to their stems  
in order (sm. to lg.)

Create a stemplot:

// // // // // // // // // //

0  
1  
2  
3  
4

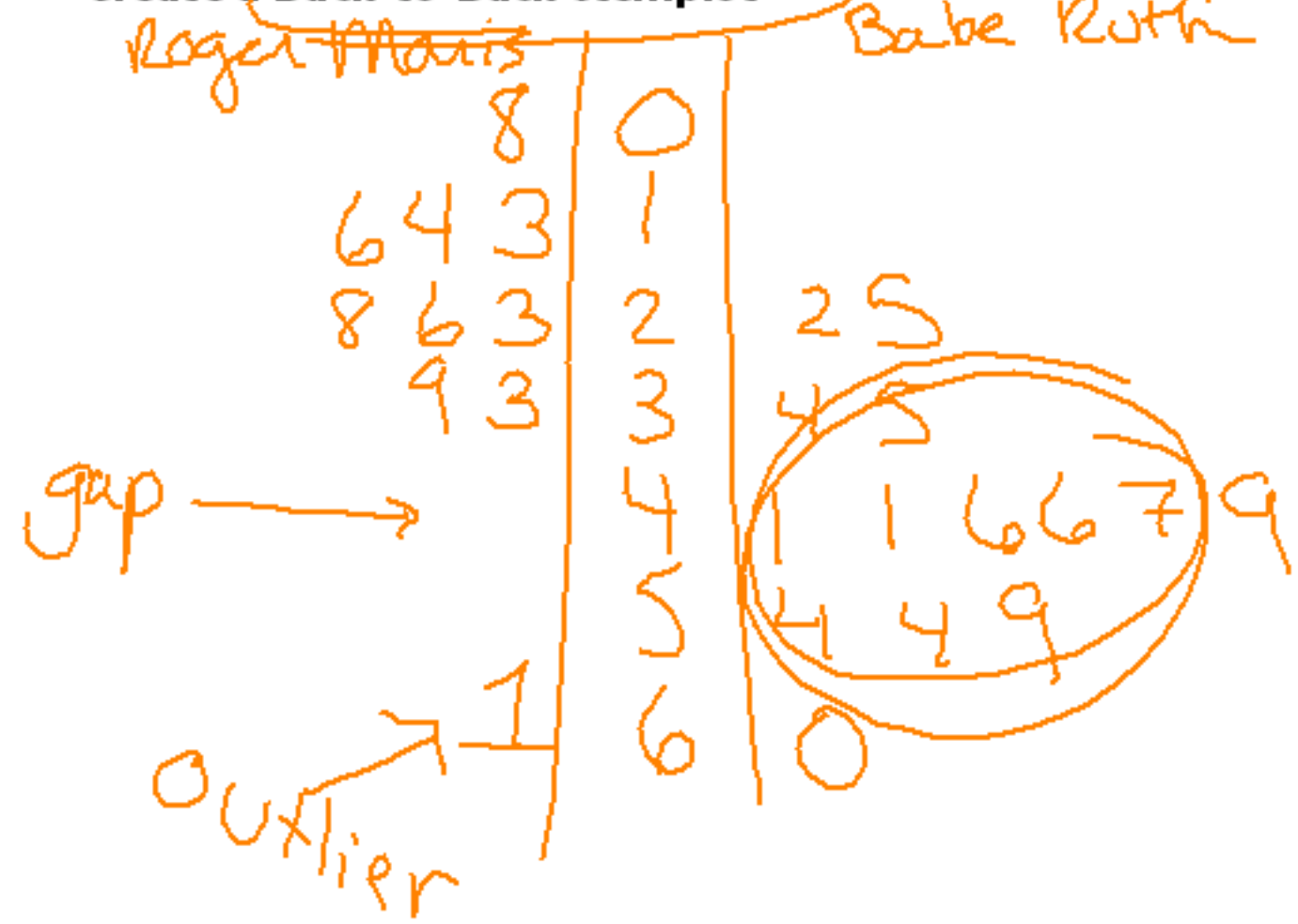
Babe  
Ruth  
HR season  
totals

2		2	5
3		4	5
4		1	1 6 6 7 9
5		4	4 9
6			

Example 1: Babe Ruth's homerun totals each season for the Yankees:  
54, 59, 35, 41, 46, 25, 47, 60, 54, 46, 49, 41, 34, 22

Example 2: Roger Maris' homerun totals for the Yankees:  
~~8, 13, 23, 33, 28, 16, 14, 39, 26, 61~~

Create a Back-to-Back stemplot



## Splitting Stems:

When?

All data clustered  
in only a few stems

In what ways can the stems be split?

\* evenly by our  
# system

\* Example 3: Age guesses

### BLOCK 1 & 3

(0-9) 2 | 156777777888999999  
(0-9) 3 | 00000011111122223333444455679

(0-4) 2 | 1  
(5-9) 2 | 56777777888999999  
(0-4) 3 | 000000111111222233334444  
(5-9) 3 | 55679

20-29 → 2  
30-39 → 3

20-24 2  
25-29 2  
30-34 3  
35-39 3

sym

(0-1) 2 | 1  
(2-3) 2 |  
(4-5) 2 | 5  
(6-7) 2 | 6777777  
(8-9) 2 | 888999999  
(0-1) 3 | 000000111111  
(2-3) 3 | 22223333  
(4-5) 3 | 444455  
(6-7) 3 | 67  
(8-9) 3 | 9

28-31

***Age guesses*****Block 1 & 3****Block 1****Block 3**

2

2

2

21

21

2

2

2

2

2

2

2

2

2

2

25

2

25

26

26

2

2777777

2777

2777

2888

2

2888

2999999

2999

2999

3000000

300

30000

3111111

31

311111

32222

322

322

33333

33

3333

34444

34

3444

355

355

3

36

36

3

37

3

37

3

3

3

39

39

3

## 2. Dotplot

- Each... obs. on x-axis
- Every time... see an obs., put a dot above it
- Better for... smaller sets of data  
smaller range

Example 1: Age Guesses



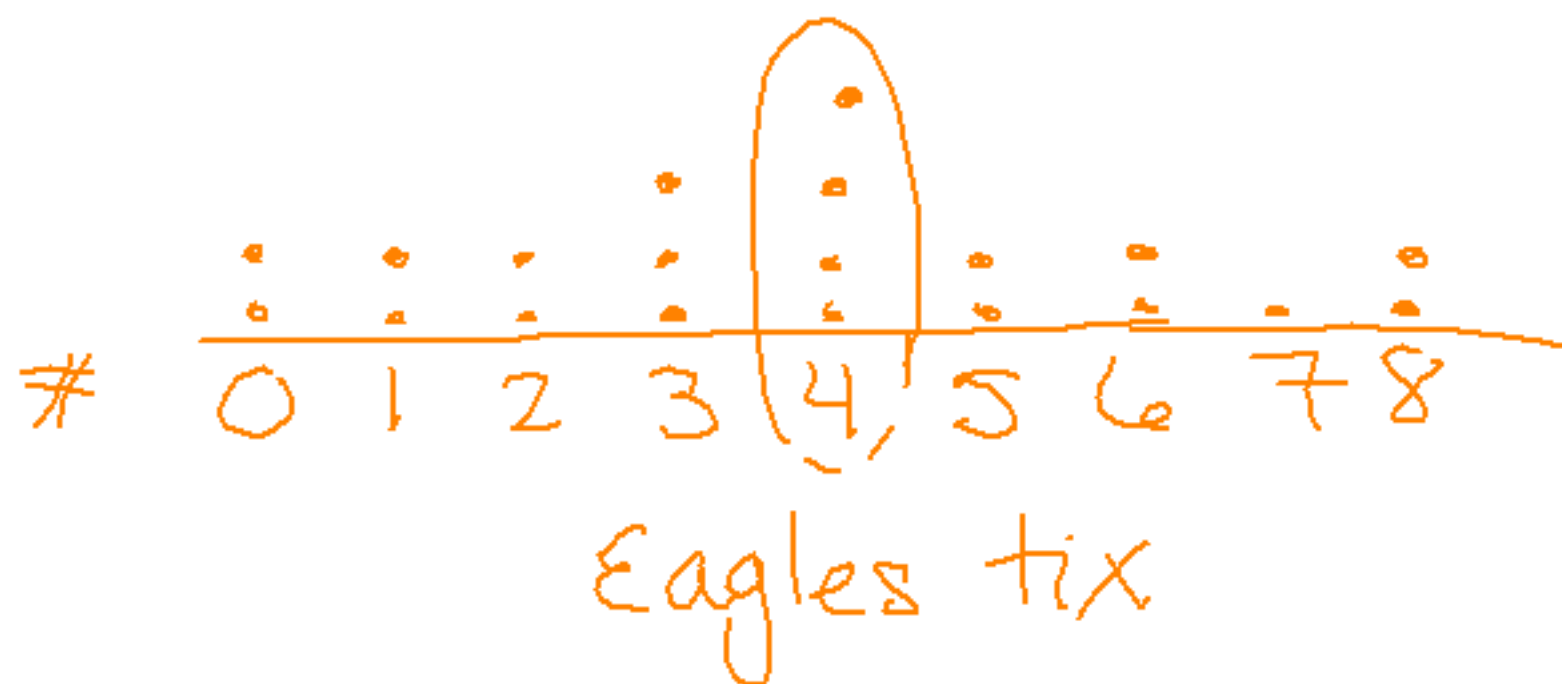


Example 4:

Below are the number of Eagles tickets bought per buyer during a 1 hour period on ticketmaster.com:

~~8, 5, 0, 7, 1, 4, 4, 6, 2, 1, 4, 5, 3, 0, 8, 4, 3, 2, 6, 3~~

Create a dotplot



- Please take a look at the sheet entitled:  
Inputting and working with lists

\* from yesterday  
\* the one with  
Height + Arm  
Span on it.

- Please find a partner, get out your calculators, and  
come get a link off the front table
- Please complete the worksheet

each person  
needs one

\* have your HW on your desk

### 3. Histogram

## Quantitative data

- Take... data + split into equal groups/classes
- o Understand your data
- o Choose classes (logical)
- o Classes can't overlap

- Count... obs. in each class
- Create... histogram (bars)

- o X-axis: classes/groups
- o Y-axis: frequency (#s)  
relative freq. (%)  
cumulative freq.  
cumul. rel. freq.



Example: page 14, example problem 1.9

Example 2: Test Scores (TEST)

Create a frequency histogram on the calculator

- 2<sup>nd</sup> STATPLOT
- PLOT 1
- ON
- Histogram
- Select X-list (TEST)
- Zoom 9
- Window - change scale - graph again

\*must have  
at least 5 bars

### Creating other types of histograms:

Using a chart is very helpful when creating the other types of histograms:

List TEST

Class/Group	Frequency	Relative Frequency	Cumulative Frequency	Cumulative Relative Freq.
40-50	3	5.8%	3	5.8%
50-60	4	7.7%	7	13.5%
60-70	17	32.7%	24	46.2%
70-80	13	25%	37	
80-90	11	21.2%	48	
90-100	4	7.7%	52	
Total:	52		52	100%

Graphs:

## Comparison:

Stemplots

Histograms